

# Advanced Ceramics: Materials with Excellent Prospects

**2015 ANNUAL REVIEW** 





## TABLE OF CONTENTS

Page 2/3	Page 10/11	Page 24/25
CeramTec	Medical	Management Policy
	Applications and	
Page 4/5	Industrial	Page 26/29
Statement from	Applications	Sustainability
the CEO		
	Page 12/15	Page 30/31
Page 6/7	Medical	Executive and
Future Prospects	Applications	Supervisory Board
Page 8/9	Page 16/19	
<b>Growth Potential</b>	Industrial	
	Applications	
	Page 20/21	
	Worldwide	
	Page 22/25	
	Facts and	
	Figures	

# CeramTec is a leading global developer, manufacturer, and supplier of advanced ceramic products.

Our ceramic products are made from highly specialized materials characterized by their superior biological, mechanical, electrical, thermal, and chemical properties.

Our operations are divided into two business segments:

## **Medical Applications and Industrial Applications.**

The Medical Applications segment focuses on ceramic components for medical implants. Due to their biocompatibility, high wear resistance, and manufacturing precision and quality, BIOLOX®-based implants have a positive effect on patients' lives and create real added value for health-care systems compared to their metal-based counterparts.

The Industrial Applications segment develops and supplies a broad range of highly specialized, performance-critical components for myriad applications in the automotive, electronic and consumer goods, machinery, and chemicals industries.

Our success is based on market leadership in medical implants and highly specialized industrial niches, our sustained technological edge thanks to continuous advancements, long-standing customer relationships and our global commercial and technical expertise.



Henri Steinmetz Chairman of the Executive Board | CEO CeramTec Group

"We exceeded the €0.5 billion sales mark for the first time in 2015 – the foundation for a successful future."

## Advanced Ceramics – Fascinating Material with Potential

Advanced ceramic materials offer enormous potential. As the new CEO of the CeramTec Group, I look forward to leading the company – as a leading global advanced ceramics specialist with innovative ideas and solutions – into a successful future. I would like to thank my predecessor, Dr. Zimmermann, for his over 15 years of successful service leading CeramTec. At the same time, I am delighted that he will offer his extensive experience in the ceramics sector as a member of the Supervisory Board and as Senior Advisor to CeramTec to ensure the continuation of this success. We will continue to build on this solid foundation to generate sustainable growth at an international level.

My background in the chemical industry means that I am well acquainted with advanced ceramics. I have always been fascinated by the diversity of ceramic materials, their outstanding properties, and the wide range of applications from medicine to industry. CeramTec is looking to the future with great innovative strength and will tap and develop new, lucrative fields of application in all areas. Increasingly dynamic trends such as Industry 4.0, the rapid advances in production technologies, custom manufacturing, 3D printing as well as digitization and the Internet of things offer tremendous potential for growth. Our innovative advanced ceramics are helping to drive forward technological progress – and often make them possible. To be even better prepared for these challenges of the future and to position CeramTec far ahead as an innovation driver, we have launched an excellence initiative that covers every aspect of the company: Commercial Excellence, Operational Excellence, and Innovation Excellence.

#### 2015 Milestones

CeramTec closed the 2015 fiscal year with record sales. We met our high expectations and reached our targets. We concentrated our management responsibilities to address our customers and markets even more effectively going forward. Our new Managing Director Dr. Hadi Saleh is responsible for the Medical Applications segment as its Chief Operating Officer (COO). As the Chairman of the Executive Board, I (Henri Steinmetz) have taken over Dr. Zimmermann's duties as Chief Executive Officer (CEO) and am responsible for the Industrial Applications segment. Our Chief Financial Officer (CFO) Dominique Janbon is responsible for Finance. CeramTec is well positioned for the future with this new, clear management structure.

## **Medical Applications Segment Continues Growth Path**

The appointment of Dr. Hadi Saleh as the new Managing Director responsible for the Medical Applications segment is an enrichement to CeramTec. Dr. Saleh brings with him a wealth of specialist and industry knowledge from his experience in medical technology. We once again celebrated a record year in 2015, both in terms of components produced and sales generated, with arthroplasty components for hip joint replacements. More than twelve million BIOLOX® components have already been implanted worldwide. To satisfy growing demand, we expanded production capacities at our Marktredwitz and Lauf sites. We invested in new buildings and expanded production capacity for BIOLOX® hip joint components at the Marktredwitz site at an early stage. At the Lauf site, we are focusing on new fields of application for advanced ceramics. A ceramic shoulder joint replacement was successfully implanted for the first time in 2015, for example.

## **Strong Year for the Industrial Applications Segment**

In the Industrial Applications segment, CeramTec turned in a consistently strong performance with profitable growth internationally. A significant factor was the successful acquisition of U.S. precision casting specialists DAI Ceramics Inc. to expand our expertise and product palette. The International Sales Development function was created to better leverage our synergies in international sales and to improve communication with the German parent company. CeramTec is actively driving forward the internationalization of the Industrial Applications segment, for which CeramTec has opened another site in Patiala, India.

## Expanding the Product Portfolio, R&D, and Customer Orientation

New applications in existing and new markets result in increased demand for our products. This is why we are aligning our product and materials portfolio to promising future technologies and market needs. We are investing in research and development as well as in new manufacturing technologies to reinforce our position as an international innovation driver. We are increasing customer contact with on-site expertise and service, with new technologies, processes, and solutions, and are opening up new market niches to generate profitable growth.

## **Employees and Outlook**

I would like to extend my personal thanks to our employees, who have made a significant contribution to our success with their knowledge, skills, and hard work. My explicit thanks also go to my predecessor, Dr. Ulf-D. Zimmermann, for his many years of service. I look forward to shaping the future of CeramTec together with the management team and take advantage of new opportunities for growth to sustainably increase the value of the company.

Henri Steinmetz | CEO

## **CeramTec – Exciting Prospects for the Future**



## The Path to Growth with Advanced Ceramics

CeramTec is active in many of the fields of the future and will benefit greatly from the megatrends of the 21st century: Our innovative solutions made from advanced ceramics play a key role in daily life around the world – from life sciences and medical engineering to mobility and electronics all the way to mechanical and plant engineering, energy, environmental technologies and chemicals. All of these fields offer enormous potential for dynamic growth and enhancing the value of the company.

## **Improving Health**

As life expectancy steadily increases around the globe, so too does the demand for medical care. More and more countries, particularly in Asia, can afford better preventive healthcare. Medical products and solutions such as implants and other medical engineering applications made from advanced ceramics enable CeramTec to help more and more people maintain and improve their quality of life.

## **Driving Miniaturization**

More powerful, faster and more features in less space: The miniaturization trend sets the pace for innovations in every sector of business. Electronic devices are becoming increasingly compact. Microelectronics with sensors and actuators are developing into microsystems. The future belongs to

nanotechnologies. Modern information and communications technology is increasingly being used in everything from everyday objects to Industry 4.0. CeramTec's advanced ceramics makes it possible to achieve higher power density.

## **Making Mobility Even More Efficient**

In the future, individual mobility will be shaped by driver assistance systems, digital networking through to autonomous driving with intelligent technologies that are optimally adapted to the user. Information, communication, sensor and actuator systems as well as safety technology will play a key role. Areas like these, as well as hybridization and electrification, lightweight solutions and composites, offer growing opportunities for applications based on CeramTec's advanced ceramics.

## **Protecting Energy, the Environment and Resources**

Global challenges such as climate change and environmental protection, the energy transition and stricter regulations are increasing the pressure to innovate faster. Optimized technologies, methods and materials are needed for the ecofriendly, networked energy concepts of the future and more efficient use of energy supplies. CeramTec's advanced ceramics help to save energy and protect the environment in all of these areas.



# Digital Interconnection, Industry 4.0, Big Data, Internet of Things

Industry 4.0 – the Internet-driven fourth industrial revolution - unlocks great innovation potential for companies like CeramTec on the back of the growing interconnection of the real and virtual world to an Internet of Things. The processes and products of industrial production are becoming intermeshed and interconnected with cutting-edge information and communication technology. Data volumes are also increasing as a result of digitization and big data must be managed. Extremely flexible and highly efficient production technologies such as 3D printing can be used to produce small batches of highly individualized products under the same conditions as large-scale series production. All partners can be involved in the business and value creation processes. In this way, entire value-creation networks from production to logistics can be managed and optimized virtually in real time. CeramTec's innovative advanced ceramics are helping to drive forward this technological progress - and are making it possible in many cases.

# FACTORS THAT WILL DRIVE SUCCESSFUL GROWTH IN THE FUTURE

- There is rising demand for advanced ceramics in high-performance applications
- The need for medical products is growing worldwide
- Global rise in miniaturization in electronics and electrical engineering for components, devices, equipment and systems
- Increasing integration of electronic components and systems worldwide
- Industry 4.0, digital interconnection, digitization, big data and the Internet of Things offer new applications and potential
- Dynamic advances in environmental engineering result in a growing need for innovation

# Worldwide Growth Potential: Advanced Ceramics from CeramTec



Advanced ceramics from CeramTec are used around the world. The material of the 21st century – a material that will shape our success in the future.

As one of the global market leaders and pioneers in technical ceramics development, CeramTec offers a variety of solutions made from highly specialized ceramic materials for an increasingly broad range of sophisticated application areas. Our products are present in virtually every area of life, work and technology: from industry, medical engineering, aerospace applications and vehicle engineering all the way to hip, knee and shoulder joint implants.

Our advanced ceramics are often unseen, but almost always indispensable – in cars, devices, machines, plants and even in the human body. More and more, they are used where materials such as metals or plastics do not ideally fulfill existing requirements or when application challenges cannot be overcome with conventional materials. High-tech solutions from CeramTec offer more potential for outstanding performance. Thanks to their tailored profile of mechanical, electrical, thermal and biochemical property combinations, our advanced ceramics enable one-of-a-kind, highly innovative solutions. From customized, single-unit productions to series productions with millions of units, CeramTec delivers the highest quality.

We are highly sought-after around the world as an innovation partner for solution design in a growing number of applications. With over 20,000 products, CeramTec has excellent growth prospects for a dynamic future – in two areas of application:

Both in Medical Applications – orthopedics – and in Industrial Applications – vehicle and automotive engineering, electronics, energy and environmental engineering, equipment and mechanical engineering – CeramTec is a leading company in advanced technical ceramics. We drive pioneering developments that bring businesses and people lasting benefits and success.

Our business anchors us in a number of industries and growth markets around the world, giving us the stability to weather market fluctuations and simultaneously take advantage of every opportunity that arises. We are also the market leader in many niche markets.

## CeramTec - Strengths

- CeramTec is the market leader in medical implants and highly specialized industrial niches based on high-performance products tailored to customer requirements
- CeramTec offers a sustained technological advantage based on continuous development of new customerspecific products and material and production processes expertise
- Experienced R&D team with 300 employees
- Extensive material and manufacturing process expertise and protected intellectual property with over 1,200 patents
- CeramTec enjoys long-term customer relationships and high brand recognition with over 300 brands
- Global sales and technical support teams with extensive experience

Medical Applications Industrial Applications

## Medical Applications and Industrial Applications: Drivers for Growth



## **Medical Applications: Healthy Ongoing Growth**

Our advanced ceramics are innovative and optimized in terms of their functionality, biocompatibility, reliability and cost. They will play an increasingly important role in the future of medical engineering and arthroplasty. The market continues to grow as life expectancy increases around the globe and the demographic in industrialized countries changes. CeramTec's tailored range of biocompatible, low-wear and extremely durable advanced ceramics enables doctors to provide their patients with optimal care and to help maintain and enhance quality of life. Around the world, CeramTec stands for high-quality ceramic joint replacements. More than twelve million BIOLOX® components have been implanted worldwide to date. For over 40 years, our BIOLOX® advanced ceramics have set standards in orthopedics and are constantly being enhanced and improved for use in new applications such as in shoulder arthroplasty. This enables CeramTec to tap even more growth potential in the future.

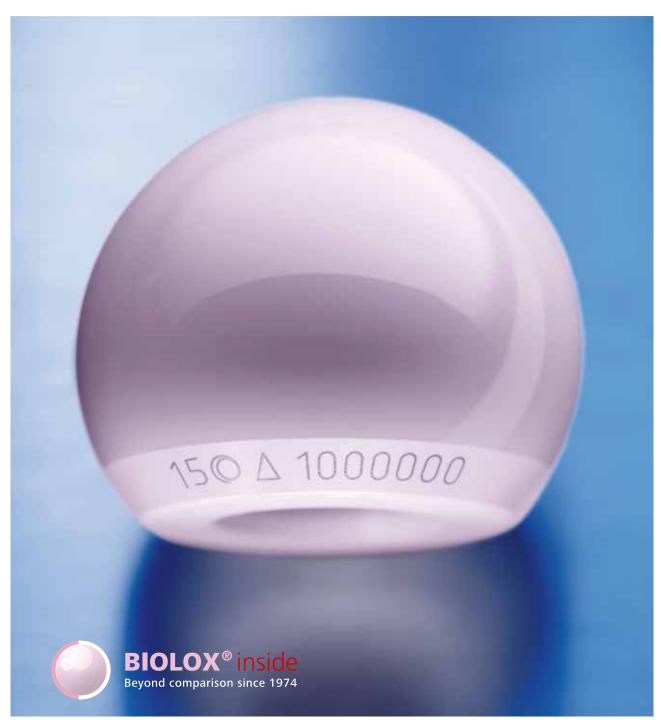


## **Industrial Applications: Interconnected Productivity, Better Results**

Our advanced ceramics expertise is in demand in virtually all sectors of industry. Against the background of Industry 4.0 – with new, customized production processes, 3D printing, digitization and big data – our solutions help to interconnect processes more intelligently and make them safer, more reliable and more cost-effective with increased operating and service life for systems, machines and tools. The specific property profiles of technical ceramics open up new possibilities wherever conventional materials reach their limits. We accelerate progress in vehicle and automotive engineering. We ensure process-reliable performance in chemical, energy and environmental engineering. We overcome wear and performance limits in equipment, mechanical and plant engineering. Advanced ceramics are an indispensable part of electronics – from telecommunications, optoelectronics, measurement and control technology to aerospace technology. We push the limits of performance everywhere, enabling the innovations that make our customers successful.

> More information is available at: www.ceramtec.com

# **Medical Applications Millions of People Count on Us**



BIOLOX® ball head for hip joint replacement systems

## **BIOLOX® – The Edge in Orthopedics**

CeramTec BIOLOX® bioceramics are used successfully in orthopedics around the globe. As one of the world's most important manufacturer of bioceramics for joint replacements in hip arthroplasty, CeramTec delivers ceramic components for modular systems to the majority of orthopedic manufacturers worldwide. 100% quality-certified BIOLOX® ceramic components offer distinct advantages over other materials and help prevent subsequent operations.

- Lowest wear compared to other wear couples
- Reduced risk of osteolysis and mechanical loosening due to particle abrasion
- Excellent biocompatibility: BIOLOX® ceramics are non-allergenic and reduce the risk of infections
- BIOLOX® ceramics extend the life of the entire hip replacement

# **BIOLOX®** Ceramics: The Leader in Hip Replacements for over 40 Years

Around the world, a hip joint replacement featuring CeramTec BIOLOX® components is implanted every 30 seconds. CeramTec components are used in half of all hip implant procedures. We produce over one million components each year. Over twelve million of our BIOLOX® components have already been implanted in hip joint replacements around the globe. We are expanding our position as the international market leader with over 40 years of experience and are setting standards in arthroplasty with our innovative materials technologies.

# **BIOLOX®** Ceramics for Knees and Shoulders: Growing Potential

We are committed to further developing the advantages of the materials used in hip replacements to apply them to other implants like knee and shoulder joints. We draw on our long-standing relationships and are working together with international knee and shoulder replacement manufacturers on a number of promising projects. Expanding the medical applications spectrum of our material enables us to capture new shares in additional markets. Knee and shoulder implants offer significant growth potential:

- Around two million knee operations are performed every year. A growing number of knee patients, especially those who are allergic to metal particle abrasion, can be treated with ceramic implants.
- Each year, around 200,000 shoulder operations are performed. With an annual growth rate of 15%, this market offers great potential for CeramTec.

# **Advanced Ceramics are Used to Perform Operations Around the World**



BIOLOX® ceramics for shoulder joint replacement systems



BIOLOX® component for knee joint replacement systems



BIOLOX® Contoura: anatomically designed hip joint ball head

## **First Ceramic Shoulder Implanted**

On April 10, 2015, the first anatomical shoulder made of BIOLOX® ceramic was implanted in the United States. The patient was allergic to titanium and cobalt-chrome, so it was not possible to use a conventional cobalt-chrome component. U.S. company Zimmer, one of the largest orthopedic companies in the world, therefore worked with CeramTec to develop, test, and produce a special ceramic shoulder head implant in three sizes in only seven months. The surgeon and the patient are very pleased with the surgery and the treatment so far.



## New Growth with BIOLOX® delta Implants in China

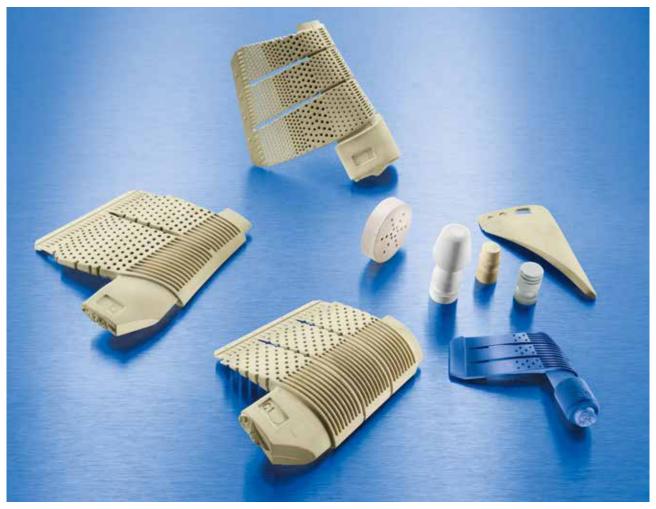
On April 23, 2015, Beijing Chunlizhengda Medical Instruments Co., Ltd. (CHUNLI), one of China's largest hip joint replacement manufacturers, became the first local producer to receive official authorization for its implant system featuring the BIOLOX® delta ceramic/ceramic wear couple. Until now, only foreign manufacturers were able to offer these types of high-quality implants. BIOLOX® products have generated annual average growth of 20–50% in China since 2014. 300,000 hip joint replacement operations are performed in China every year, with around 115,000 BIOLOX® components from CeramTec used in 2014 alone. CHUNLI's BIOLOX® delta market launch has now made these implants accessible to an even larger number of patients.



## New Study Shows that Ceramic Wear Couples Reduce Infection-induced Revision Risk in Hip Implants

A large Australian register study of 177,237 hip joint replacements has confirmed that the rate of revision due to diagnosed infections is lower with ceramic implants. According to the study, metal-polyethylene wear couples and ceramic-polyethylene wear couples had a highly statistically significant 1.42/1.46 times higher infection-induced revision rate compared to ceramic-ceramic wear couples. The study was presented by Professor Orhun K. Muratoglu from the Massachusetts General Hospital at the 2015 International Society for Technology in Arthroplasty (ISTA) Convention in Vienna. The results confirm that CeramTec's BIOLOX® delta advanced ceramics also offer important additional advantages for patients in addition to the very low abrasion rates (Graves SE, Lorimer M, Bragdon C, Muratoglu O, Malchau H. Reduced risk of revision for infection when a ceramic bearing surface is used. Abstract ISTA 2015).

# **Industrial Applications: Advanced Ceramics Boost Productivity**



Ceramic cores for precision casting applications

## **Greater Productivity with CeramTec Innovations**

We offer solutions using advanced ceramics that offer impressive engineering and productivity gains for nearly all types of industrial applications. We collaborate closely with our customers to develop solutions that will shape success in the future.

## **Ceramic Cores Added to Product Portfolio**

CeramTec can now offer its customers an even wider range of products for various casting methods following the acquisition of U.S. Company DAI Ceramics Inc. in May 2015. Ceramic cores are used in the precision casting process of advanced components for aircraft engines and stationary gas turbines, medical implants and other delicate high-tech applications.

## **Catalysts for Chemical Processes**

Many intermediate and final products in the chemicals industry can only be produced with the help of ceramic catalysts – as the demand for chemical products rises, so does the need for ceramic catalyst carriers.

## **Efficient, High-performance Machining**

SPK® cutting ceramics and precision tools improve process reliability and maximize machining performance in metal-working. The expanded portfolio of high-performance crystalline boron nitride (CBN) cutting materials is yet another growth driver in the field of cutting tools.

## **Leading Role in Equipment and Mechanical Engineering**

Our ceramic bearings and components are used in areas subject to extreme stresses in the field of equipment and mechanical engineering. Our Cyrol® bearing rollers made from silicon nitride make it easier to find solutions for difficult bearing situations than with standard steel roller bearings. They reduce friction and wear, cut maintenance costs and expenditure, and open up entirely new fields of application in a number of industries and high-end markets.



Catalyst carriers for the chemicals industry



Inserts for turning and milling cast iron and hardened steel



Cyrol® bearing rollers made from silicon nitride



# **Dental Implants Made from Zirconium Oxide Shine for a Natural Smile**

There is growing demand for aesthetic dental ceramics for the anterior region. CeramTec developed high-quality dental blanks made from Zirconium Oxide Shine in white and five other natural colors. Its high translucency makes the prosthesis look like natural teeth so that the implants match perfectly. Zirconium Oxide Shine is also stronger than the glass ceramics and silicate materials previously used. It provides the ideal basis for the best possible results in dental restoration. Zirconium Oxide Shine has passed all of the biocompatibility tests, the market approval opens up new possibilities in dentistry.

## PERLUCOR® - For an Extreme Advantage

CeramTec's PERLUCOR® technology makes us the first European manufacturer to produce a transparent ceramic material with tremendous mechanical strength: It is a mechanically, chemically, thermally, and optically perfected solution for transparent applications in extreme conditions. PERLUCOR® opens up entirely new fields of application everywhere glass and specialty glass reach their limits – and this is a huge growth market.



## CeramTec Acquires DAI Ceramics Inc.

The acquisition of U.S. company DAI Ceramics Inc., Willoughby, Ohio, in May 2015 is another important step for the future. DAI Ceramics specializes in the production of ceramic cores for precision casting applications. The acquisition expands CeramTec's portfolio, strengthens its presence in the U.S. market and drives the company's growth.



## Marktredwitz: New Sintering Furnace Hall for Chemical Applications Components

CeramTec's new furnace hall in Marktredwitz (investment: €3.5 million) is a sign of future growth in the Chemical Applications Division. Construction work began in May 2015 and the sintering system was commissioned in February 2016. The multifunctional kiln meets the demands of increased production capacity, as well as energy efficiency and environmental friend-liness.



## CeramTec Subsidiary Emil Müller GmbH Purchases Production Hall in India

At the end of February 2015, Emil Müller GmbH purchased a company site in Patiala, Punjab, India. The approximately 1,000 sqm production hall is called "CeramTec India Patiala Branch" and produces salt cores according to customer demands (cores for the production of casting components), which can be delivered just-in-time using the kanban system.



## **New CeramTec Representative Office in Turkey**

CeramTec's new Representative Office is located directly on the Bosporus in the attractive building complex of the German Chamber of Commerce (Istanbul office). It strengthens CeramTec's presence in Turkey and neighboring countries. The office provides a point of contact for existing partners and for establishing business relations, with space for all business events.



## **Growing Beyond Borders**



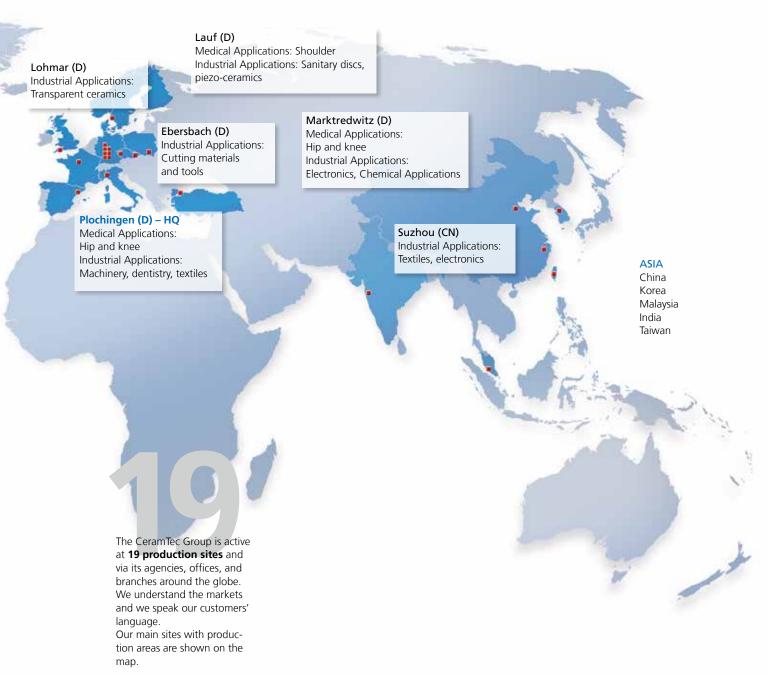
A 112-year success story

What began as a porcelain manufacturing business 112 years ago is now a materials specialist for advanced technical ceramics with a global presence.

1951 Südplastik und Keramik Gesellschaft (SPK) established in Plochingen **1954 Feldmühle AG** acquires
Südplastik und
Keramik Gesellschaft

**1903 Thomaswerke**established in
Marktredwitz

1921
Philipp Rosenthal & Co. AG
cooperates with AEG on technical
porcelain / STEMAG AG
(Steatit-Magnesia Aktiengesellschaft) established



## 1991

Feldmühle AG's ceramic operations become an independent business under **Cerasiv GmbH** 

## 1992

Feldmühle AG sells Cerasiv GmbH to **Metallgesellschaft AG,** Frankfurt

## 1996

Merger of Cerasiv GmbH and Hoechst CeramTec AG into **CeramTec AG** as part of the **mg technologies AG Group** 

## 2013

Acquisition of the CeramTec Group by **European private equity firm Cinven** 

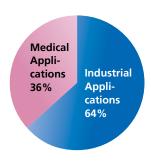
# **1971 Rosenthal Technik AG**established to manufacture technical ceramics

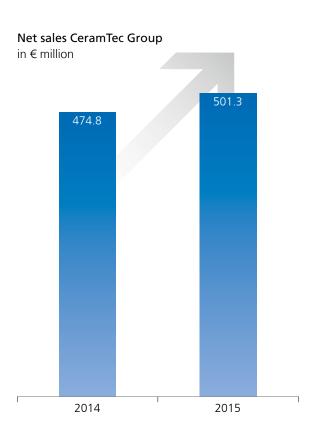
### 2004

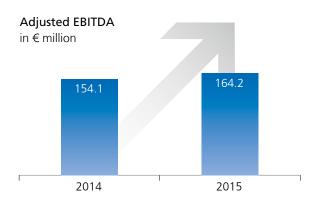
CeramTec AG purchased by **Rockwood Holdings Inc.**, Princeton, NJ, USA

## **Results that Speak for Themselves**

### CeramTec sales in 2015







In 2015 we generated net sales of €501 million and adjusted EBITDA of €164 million – representing a 32.7% adjusted EBITDA margin. During the period from 2014 to 2015, our net sales continued growing at +5.6%, with growth in both of our segments, Medical and Industrial, at 2.9% and 7.2% respectively.

Adjusted EBITDA for the Group rose by 6.6%, driven by volume growth and productivity gains, supported by the acquisition of DAI and positive FX gains.

Net CAPEX was €27 million in 2015, back to the normal longterm level after completing the capacity expansion of the Marktredwitz plant for Medical Applications in 2014. Our cash conversion ratio increased further to 71%. We believe that we have a highly cash generative business supported by modest maintenance capital expenditure requirements of approximately €15 million annually.

### Medical

Medical sales grew by 2.9%, with ball head volumes up 6.9%, resulting in a total of 1.29 million units sold in 2015. We believe that the bearing couple made with our BIOLOX® ceramic offers clear performance benefits to patients, especially to younger and active patients.

### **Industrial**

Industrial sales grew by 7.2%, driven by strong performance in electronic applications and the Emil Müller group as well as the acquisition of DAI. This was also supported by the effects of currency fluctuations. Our Industrial business profited from the overall good conditions in the automotive, construction, and machine manufacturing markets. Broadly stable development in the business was a result of a range of compensating effects, such as healthy catalyst volumes compensating for the e-cigarette business of previous years in CeramTec North America, softer textile business in mechanical applications, and also a stronger defense business of CeramTec-ETEC on the back of a recovery in government spending.

## 

The CeramTec Group generated **sales** of €501 million in 2015.

	2015	2014	Change
Net sales Medical Applications	182.7 €	177.6 €	2.9 %
Net sales Industrial Applications	318.6 €	297.2 €	7.2 %
Net sales CeramTec Group	501.3 €	474.8 €	5.6 %
Adjusted EBITDA	164.2 €	154.1 €	6.6 %
Adjusted EBITDA in % of sales	32.7 %	32.4 %	
Employees (full-time equivalents)	3,244	3,214	0.9 %
CAPEX (net)	26.7 €	46.3 €	(42.3) %
Of which CAPEX (net) expansion Medical Applications in Marktredwitz	2.8 €	15.3 €	

Gross debt	958.3 €	968.8 €	
Cash	86.5 €	62.2 €	
Net debt	871.8 €	906.5 €	
As of Dec. 31, 2015	EUR million	EUR million	

## Our Drivers – Our Values Management Policy



The CeramTec Group aims to achieve profitable, global growth while conserving energy and protecting natural resources. Our objective is to strengthen and advance CeramTec's international leadership position. We have laid the groundwork for this by establishing reliable technical and organizational processes and creating an atmosphere of trust that fairly balances the interests of customers, employees and shareholders. We conduct business according to a set of clearly defined management principles, which we review on an annual basis.

## **Products**

We strive to develop, manufacture and market our high-quality products in the most cost-effective, safe and eco-friendly way while conserving resources.

## Customers

We always focus on our customers' needs, creating products tailored to their unique specifications.

## Responsibility

We act with a strong commitment to safety, health and the environment. We comply with all applicable standards, laws and regulations in both manufacturing and procurement, and the efficient use and consumption of our energy resources.

## Quality

We plan, develop, implement, monitor and continuously improve all of our processes. This applies to quality (target: zero errors), work safety, health, environmental protection, information security and energy management.

## **Targets**

We set targets for profitability, quality, safety, health, environmental protection and information security. We are also committed to long-term reductions in energy consumption and increasing our energy efficiency through continuous process improvement (CPI). We make information and resources available to meet these targets and constantly measure our level of success using key metrics to foster the growth of our business.

## **Employees**

Having capable and responsible employees is important to us. We train our employees in ongoing courses focused on quality, work safety, health, environmental protection, information security and energy efficiency. We recognize the success of our employees and encourage them to excel. Every employee is responsible for doing his or her part to meet our quality, work safety, health, environmental protection, information security and resource conservation targets.

# Quality is Firmly Rooted in CeramTec's Mission Statement

For us, quality means meeting and exceeding not only our customers' but also our own requirements and expectations.

Our certifications attest to our unwavering commitment to quality: DIN ISO 9001, ISO TS 16949, DIN EN ISO 13485, DIN EN ISO 14001, DIN EN ISO 50001, DIN EN ISO/IEC 17025

Henri Steinmetz | CEO Chairman of the Executive Board

Dominique Janbon | CFO Member of the Executive Board

Dr. Hadi Saleh | COO Member of the Executive Board

## CeramTec Corporate Social Responsibility Policy



## **Principles of Sustainable Corporate Responsibility**

Sustainability is embedded in our corporate culture and is integral to the worldwide CeramTec Group. Our CSR Policy supports our aim to achieve profitable, global growth, conserving energy and protecting natural resources, while acting in an ethical way with integrity, as outlined in our Management Policy. CeramTec is aware of its responsibility towards its stakeholders, society and the environment. Sustainable development means taking responsibility for the impact our thoughts and actions have in the

- financial
- environmental
- social

dimensions that affect our natural resources, our employees, our customers, society, financial markets, business partners and neighboring communities — embedded in a Corporate Governance System. CeramTec exerts influence in a positive, ethical and respectful way to strengthen and advance our international leadership position as one of the world's best advanced ceramics producers. CeramTec's Executive Board sets, reviews and reports on our goals and achievements on an annual basis and assumes ultimate responsibility for the CeramTec Social Responsibility Policy. Our CeramTec Management Policy as well as the laws and regulations that apply worldwide to all of our employees ensure sustainable action in all of our business areas.

# Financial Responsibility: For Sustainable Business Development

We aim to achieve sustained, profitable growth for continued successful business development characterized by responsible business practices and integrity. Financial sustainability is the basis for the future of our company and positively affects employees, shareholders, customers, business partners and suppliers. We can only achieve financial success with our customers, which is why the satisfaction of our customers is the core focus of our strategy. We create sustainable demand by offering competitive products with the highest possible quality that are specifically tailored to our customers' needs. Our special focus on customer satisfaction and trust ensures long-term cooperation - it is the cornerstone of our company's stable financial growth.

## Environmental Responsibility: For Sustainable Environmental Development

CeramTec is committed to making the world a greener place by keeping our ecological footprint as small as possible. We understand that ecological sustainability is a key component of our corporate social responsibility and strive to keep our own impact on the environment to a minimum by conducting environmentally-friendly, professional and safe operations. This includes conserving scarce resources such as raw materials, energy and water as well as avoiding and reducing CO<sub>2</sub> emissions and waste.

Our fair, ethical and environmentally-friendly approach incorporates everything from the management of our company, the manufacturing of our products to the procurement of resources and even our investments in buildings and facilities. Constantly tracking our actions enhances our environmental protection and energy management programs while making our methods and processes safer and more efficient. We take various aspects of energy management into consideration when developing materials and products. A unique training concept and regular information on energy management contribute significantly to employee awareness in this area. All employees are actively involved in the various aspects of energy management as part of daily business and thus help us reach our goals and continue to improve our methods and

processes. Our efforts pay off worldwide by helping preserve essential resources that form the basis of life for us all.

# Social Responsibility: For Sustainable Social Development

We are dedicated to improving society by operating our business in a responsible manner and always acting with integrity in all areas: as an employer, business partner and "good neighbor" and key member of the local community at all of our company's sites. For CeramTec, taking responsibility for the people we have direct relationships with is a matter of principle. We are aware that our actions affect more than just the people we deal with directly – we also have a broader impact on society in general. This is why we strive to be a responsible and prudent business partner who follows sound ethical and moral principles, acts in accordance with the law and lives up to high standards for social responsibility by applying specific rules and guidelines.

Above all, this concerns our employees. Their expertise, technical skills, creativity and dedication are the driving force behind our sustainable global success. The diversity of CeramTec employees is a tremendous asset. CeramTec is committed to providing an equal opportunity in all aspects of employment and requires strict adherence to laws regarding discrimination and harassment in the workplace. We ensure our employees' health and safety through a strictly enforced OHS policy, provide good working conditions and offer opportunities for development and qualification so that they can realize their full potential. Our continuous improvement system promotes participation and motivation for ongoing optimization of the company. In our business relations, we want to be the preferred partner by acting in a reliable, respectful and trustworthy manner to achieve sustainable relationships marked by long-term economic success for both parties. We have a global presence and are a good neighbor in the communities where our sites are located by shaping our social surroundings in a positive way. Our involvement includes both indirect contributions such as donations and direct activity in the fields of education and science, arts, culture, sports and in social and humanitarian projects.

## **Corporate Governance: Acting with Integrity**

CeramTec's Executive Board and Supervisory Board consistently implement the principles of responsible corporate governance. These primarily comprise a compliance management system, an internal control system, and risk management. All

are managed, monitored and reviewed in regular audits. This also includes management decisions aimed at creating value over the long term, a formal, transparent process for nominating and electing board members, protecting the interests of various groups, targeted collaboration within the company management, monitoring objectives and clear and transparent corporate communications and reporting. We always act in accordance with the applicable laws and standards, and often go beyond these. Our CSR Policy stands alongside other policies of the CeramTec Group, including our Management Policy, our Code of Conduct, the SHE Policy, the Procurement Policy or the Energy Management Policy, which ensure that we act sustainably.

## Sustainable Materials: For Quality of Life and Profitability

Developing products made from advanced ceramics reflects our sense of responsibility when it comes to the future. We create sustainable solutions that are used worldwide in countless industries and fields of application. They improve quality of life, increase efficiency, enhance productivity, save energy and protect the environment – while supporting our customers in reaching their own sustainability targets.

# Take Responsibility Seriously and Act Accordingly

## **Put Responsibility into Practice**

We consistently implement our basic principles of sustainable, responsible business management. Our efforts clearly pay off by conserving energy and protecting the environment and our natural resources. This is reflected in our social commitment for people in the community and our employees, in our training programs, equal opportunities, development and growth and health and safety.

The primary goal of our DIN ISO 14001-certified environmental management system is to promote environmental protection and prevent environmental pollution in line with finan-

cial, social and political requirements. Our energy management system, which is certified according to DIN ISO EN 50001, takes every aspect of the company into account – from processes, methods and materials to products, buildings and facilities – to increase energy efficiency and sustainably reduce energy consumption.

Our achievements are clearly visible in our key performance indicators. And we will continue to strengthen this commitment in the future.

Key Figures	Unit	2013	2014	2015		
Workforce						
Total workforce (6)	Persons	3,361	3,403	3,432		
of which male (6)	Persons	2,109	2,164	2,106		
of which female (6)	Persons	1,252	1,239	1,326		
Apprenticeship rate (3)	%	6.47%	6.46%	7.39%		
Health and Safety						
Staff away sick	%	2.11%	2.04%	1.54%		
Continuous improvement system suggestions (1)	Total number	10,940	11,117	11,071		
Lost time accidents (LTAs)	Total number	10	10	10		
LTA frequency rate	LTAs*200,000/total hours worked	0.36	0.34	0.34		
LTA severity rate	Lost days*200,000/total hours worked	4.10	3.13	7.01		
Environment and Energy						
Energy consumption (2) (4)	MWh	286,931	281,242	283,307		
Energy consumption/ €1m turnover (5)	MWh/€1m	655	592	565		
Water consumption (2) (2.1)	m³	296,493	303,804	277,873		
Water consumption/ €1m turnover(5)	m³/€1m	677	640	555		
Waste (2) (2.2)	Tons	5,306	6,075	5,609		
Waste/€1m turnover (5)	Tons/€1m	12.11	12.79	11.20		
CO <sub>2</sub> emissions (2) (2.3) (4)	Tons	92,282	92,575	99,122		
CO₂ emissions/€1m turnover (5)	Tons/€1m	211	195	198		

- (1) Does not include the sites in Brazil, India, Korea, Mexico and Poland, since these have not yet implemented the CIP system
- (2) Energy consumption at all production sites, excluding sales offices and agencies
- (2.1) Total water consumption at all production sites
- (2.2) Hazardous and non-hazardous waste
- (2.3) From energy consumption at production sites, excluding travel emissions, etc.
- (3) Apprentice model only used in Germany
- (4) Gas, electricity. Does not include fuel for car fleets and emergency power supply
- (5) Based on turnover of €438 million in 2013, €475 million in 2014 and €501 million in 2015
- (6) Headcount including apprentices but excluding inactive employees

## Social and Community Involvement:

### We Lead the Way

CeramTec believes that social responsibility is inseparably linked to business success. We have a global presence, so in being a good neighbor, we help shape our social surroundings in a positive way. Our involvement includes direct activities for education and science, arts, culture, sports and for

social and humanitarian projects, as well as indirect actions such as donations. We are also committed to positive social relationships and partnerships with citizens of the communities in which our company sites are located. We take our social responsibility seriously, and this is evident in the many projects in which we are involved – here is a selection.

## CeramTec donates to Children's Hospice

In 2015, CeramTec donated around €17,000 to the Sterntaler children's hospice in Mannheim. The donation was presented by CeramTec Managing Director Dr. Hadi Saleh. This was made possible thanks in part to the personal contributions made by CeramTec employees, which CeramTec doubled on several occasions.



## CeramTec Wins DeutscherldeenPreis 2015 Award

CeramTec was awarded 1st place in the DeutscherldeenPreis 2015 competition for the Best Idea Management in the Chemicals Industry category. The prize is awarded annually by the German Institute for Business Administration (DIB) and recognizes the great dedication of CeramTec employees and managers.



# CeramTec Provides Aid to Disaster Victims after Earthquake in Nepal

The earthquake in Kathmandu in 2015 affected twelve Nepalese employees of CeramTec Malaysia, who lost family members and suffered damage to their houses. CeramTec Management provided those impacted by the events with €5,000 in immediate aid. CeramTec Malaysia contributed an additional €2,500.



## Girls' Day at the Ceramic Experts

Girls' Day, the largest career orientation project for female students in the world, gives participants the opportunity to learn about skilled trades and courses of study in IT, trade, natural sciences and technology. CeramTec's Plochingen, Lauf and Marktredwitz sites once again offered an insight into the world of advanced ceramics and the technical training occupations at the ceramic experts at the 2015 event.



## Sights on Success: Executive Board and Supervisory Board



## **Dominique Janbon**

Member of the Executive Board | CFO Finance

Master's degree in Finance and Accounting from the London School of Economics; Master's degree in Economics, Management and Finance from the Institut d'Etudes Politiques de Paris. | To 2012: Executive positions in finance and business development at the global pharmaceuticals groups Amgen International and Sanofi S.A. | Since 2012: CFO and Senior Vice President of medical technologies company Gambro AB. Was part of the management team responsible for rolling out a new growth strategy for the company and in this role made a major contribution to successfully transforming Gambro and its later sale to Baxter for \$4 billion. | October 1, 2014: Appointed to the Executive Board of the CeramTec Group.

## **Henri Steinmetz**

Chairman of the Executive Board | CEO Industrial Applications

Master of Science in Metallurgy from Clausthal University of Technology; MBA from INSEAD, Fontainebleau, France. Various management roles at General Electric, USA/ Netherlands. | Director Business Development Europe at M.A. Hanna Company in Cleveland, Ohio, USA. | Corporate Executive Vice President and President of the Polymer Stabilizers Division at Great Lakes Chemicals in Indianapolis, USA. | 2004 to 2008: Member of the Board of Directors and President of the Sulzer Metco Division at Sulzer AG, Winterthur, Switzerland. | Since 2009: President and CEO at Ruetgers NV, Belgium, a leading European manufacturer of chemical raw materials. In this position, Henri Steinmetz significantly improved the group's growth and profitability and spearheaded its expansion into the USA and Russia. | March 14, 2016: Appointed as Chairman of the Executive Board of the CeramTec Group.

## Cinven

Cinven is a European private equity firm and CeramTec is a Fifth Cinven Fund portfolio company.

Cinven is a leading European private equity firm, founded in 1977, with offices in Guernsey, London, Frankfurt, Paris, Madrid, Milan, Luxembourg, Hong Kong and New York.

It acquires Europe-based companies that require an equity investment of €100 million or more. Its European focus and expertise are complemented by an ability to capitalise on global growth opportunities through its offices in Asia and the Americas.

The firm focuses on six sectors: Business Services, Consumer, Financial Services, Healthcare, Industrials, and Technology, Media and Telecommunications (TMT). Cinven acquires successful, high-quality companies and works with them to help them grow and develop, using its proven value creation strategies. It takes a responsible approach towards its portfolio companies, their employees, suppliers and local communities, the environment and society.

"Cinven" means, as the context requires, Cinven Group Limited, Cinven Partners LLP, Cinven (Luxco1) S.A., Cinven Limited, Cinven Capital Management (V) General Partner Limited and their respective Associates (as defined in the Companies Act 2006) and/or funds managed or advised by any of the foregoing.

### Dr. Hadi Saleh

Member of the Executive Board | COO Medical Applications

Graduate and doctorate degrees at the universities of Frankfurt am Main and Mainz. | Orthopedist at St. Josef's Hospital, Wiesbaden and at the University Clinic in Heidelberg; Senior Consultant at GAIA, Hamburg. | Since 2001: Various positions at Biomet, Germany, Biomet Europe and at the parent company Biomet Inc. in Warsaw, IN (USA). | Senior Vice President and President Biomet International at Biomet Inc., responsible for all Biomet product lines worldwide outside of the USA and Europe. Leading role in the Zimmer Holdings acquisition of Bioment Inc. this June. | July 1, 2015: Appointed to the Executive Board of the CeramTec Group.

## The Supervisory Board of CeramTec GmbH

## **Shareholder Representatives**

## Dr. Günter von Au<sup>1</sup>

Vice-Chairman and non-executive member of the Board of Directors at Clariant International Ltd.

### Dr. Cheryl R. Blanchard

President and CEO at Microchips Biotech, Inc.

### **Guy Davison**

Partner at Cinven

## Prof. Dr. Jürgen Huber

Honorary Professor at the Braunschweig University of Applied Science and consultant

### **Pontus Pettersson**

Partner at Cinven and member of Cinven's Industrials Sector team

### Joseph Wan

Partner at Cinven and member of Cinven's Portfolio team

## **Employee Representatives**

## Roland Nosko<sup>2</sup>

District Manager of the Industrial Union for Mining, Chemicals and Energy (IG BCE), Nuremberg

## **Matthias Eschle**

Head of the CeramTec

Mechanical Applications Division

## Jürgen Haas

Chairman of the Works Council at the CeramTec site in Lauf and Chairman of the CeramTec General Works Council

## Jürgen Klemenz

Chairman of the Works Council at the CeramTec site in Plochingen

### Franz-Josef Köstler

Chairman of the Works Council at the CeramTec site in Marktredwitz

## **Astrid Meier**

Deputy District Manager of IG BCE, Bavaria

<sup>&</sup>lt;sup>1</sup> Chairman of the Supervisory Board

 $<sup>^{\</sup>rm 2}$  Deputy Chairman of the Supervisory Board

## **CeramTec GmbH**

CeramTec-Platz 1-9 73207 Plochingen Germany

Phone: +49 7153 611-0 Fax: +49 7153 611-673

investor-relations@ceramtec.de

www.ceramtec.com



This document contains forward-looking statements based on current assumptions and estimates made by the Executive Board regarding future developments. The statements made here are subject to risks and uncertainties that are beyond CeramTec's control and which cannot be precisely verified or estimated. Such factors include the overall market and economic situation, the behavior of other participants in the market, the successful integration of acquisitions, the implementation of the anticipated synergy effects and the measures carried out by state regulatory authorities. If these risks and uncertainties or any other events transpire, or if the assumptions upon which these statements are based prove false, then the actual results may deviate significantly from these express statements or implied assumptions. CeramTec neither intends nor is obligated to update any of these forward-looking statements in response to events or circumstances that may arise after the date of this report.